

APPLICATION OF LC-FINING TECHNOLOGY FOR UPGRADING SRC IN TWO-STAGE LIQUEFACTION
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The concept of Two-Stage Liquefaction (TSL) hinges on recognition of the fact that the deashed solid Solvent Refined Coal (SRC), obtained from a first stage coal dissolution, is a high boiling residual type hydrocarbon stream. This material can be efficiently upgraded to liquid fuels by a second stage application of conventional hydrocracking or hydroprocessing technology extensively developed and demonstrated in the petroleum industry over the last twenty years (LC-Fining). That is, by judicious hydrocracking of the SRC product from the first stage, in the presence of a selective catalyst and under optimum conditions of temperature, space velocity, and reactor pressure, the production of middle distillate liquid fuels can be enhanced, the formation of light hydrocarbon gases can be minimized, and the overall utilization of hydrogen is optimized. In addition, the operation of a separate stage of LC-Fining provides wide operating latitude to tailor the overall product slate distribution (i.e., ratio of liquids to solids) and the product quality to both current and future market product requirements.

This study will also present the results of additional PDU runs which will delineate the effects of total reactor pressure and space velocity on the hydrotreating of coal extracts.